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मानक

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IS 9033 (1978): Reproduction tracing paper [CHD 15: Paper and its products]



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IS : 9033 - 1978

*Indian Standard*  
SPECIFICATION FOR  
REPRODUCTION TRACING PAPER

UDC 676.242.2



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**INDIAN STANDARDS INSTITUTION**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

*June 1979*

**AMENDMENT NO. 2 SEPTEMBER 2008**  
**TO**  
**IS 9033 : 1978 SPECIFICATION FOR REPRODUCTION**  
**TRACING PAPER**

*(Page 5, clause 3.9, read with Amendment No. 1) — Substitute 'Additional Requirements for ECO Mark' for 'Optional Requirements for ECO Mark'.*




(CHD 15)

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Reprography Unit, BIS, New Delhi, India

**AMENDMENT NO. 1 SEPTEMBER 1993**  
**TO**  
**IS 9033 : 1978 SPECIFICATION FOR REPRODUCTION**  
**TRACING PAPER**

( *Page 3, clause 0.4* ) — Add this new clause after clause 0.3 and renumber the subsequent clauses:

**"0.4** A scheme for labelling environment friendly products known as ECO Mark has been introduced at the instance of the Ministry of Environment and Forests (MEF), Government of India. The ECO Mark would be administered by the Bureau of Indian Standards (BIS) under the BIS Act, 1986 as per the Resolutions No. 71 dated 21 February 1991 and No. 425 dated 28 October 1992 published in the Gazette of the Government of India. For a product to be eligible for marking with ECO logo, it shall also carry the  Mark of BIS besides meeting additional optional environment friendly requirements. For this purpose, the Standard Mark of BIS would be a single mark being a combination of the  Mark and the ECO logo. Requirements to be satisfied for a product to qualify for the BIS Standard Mark for ECO friendliness, will be included in the relevant published Indian Standards through an amendment. These requirements will be optional; manufacturing units will be free to opt for the  Mark alone also.

This amendment is based on the Gazette Notification No. 455 dated 13 November 1992 for paper as environment friendly products published in the Gazette of India. This amendment is, therefore, being issued to this standard to include environment friendly requirements for reproduction tracing paper.'

( *Page 5, clause 3.8* ) — Add the following new clause after **3.8**:

**'3.9 Optional Requirements for ECO Mark**

**3.9.1 General Requirements**

**3.9.1.1** The product shall conform to the requirements for quality and performance prescribed under clauses **3.1** to **3.8** and clause **4.1**.

**3.9.1.2** The manufacturer shall produce to BIS, the environmental consent clearance from the concerned State Pollution Control Board as per the provisions of Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 along with the authorisation, if required, under the Environment (Protection) Act, 1986 and the rules made thereunder, while applying for ECO Mark.

### 3.9.2 Specific Requirements

**3.9.2.1** The material shall be of the following two types depending on the raw material used in the manufacture:

- a) *Type A* — Manufactured from pulp containing not less than 60 percent by mass of pulp made from materials other than bamboo, hard woods, soft woods and reed.
- b) *Type B* — Manufactured from pulp made from 100 percent waste paper.'

( *Page 5, clause 5.1* ) — Add the following new clause after **5.1**:

**'5.1.1** For ECO Mark, the product shall be packed in such packages which shall be recyclable/reusable or biodegradable.'

( *Page 6, clause 5.2.1* ) — Add the following new clause after **5.2.1**:

**'5.2.2** For ECO Mark, following additional information may also be marked on the container/package:

The criteria for which the product has been labelled with ECO Mark.'

# *Indian Standard*

## SPECIFICATION FOR REPRODUCTION TRACING PAPER

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*Indian Standard*  
**SPECIFICATION FOR  
REPRODUCTION TRACING PAPER**

**0. FOREWORD**

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 14 December 1978, after the draft finalized by the Paper and Its Products ( Excluding Packaging Materials ) Sectional Committee had been approved by the Chemical Division Council.

**0.2** Diazo reproduction tracing papers are sensitive to heat and moisture. Therefore, to get satisfactory performance from these papers, it is desirable that they are kept in cool and dry place. The validity period as guaranteed by the manufacturer for a satisfactory performance of these papers will, therefore, more suitably apply in those cases where the paper has been stored properly.

**0.3** This standard contains clauses **2.3** and **3.7** which call for agreement between the purchaser and the supplier and which permit the purchaser to use his option for selection to suit his requirements.

**0.4** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS: 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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**1. SCOPE**

**1.1** This standard prescribes the requirements and methods of sampling and test for diazo reproduction tracing paper intended for use in making reproduction of original drawings, tracings and other documents by contact printing and ammonia vapour development or moist development.

**2. TYPES AND GRADES**

**2.1 Types** — The paper shall be of the following two types:

*Type 1* — Dry ( ammonia vapour development ).

*Type 2* — Moist ( solution development ).

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\*Rules for rounding off numerical values ( *revised* ).

**2.2 Grades** — Each type of paper shall be of three grades depending on its grammage as indicated below:

<i>Grade</i>	<i>Grammage</i>
Light	50 ± 5
Medium	65 ± 5
Heavy	85 ± 5

**2.3** Each type and grade of paper shall produce prints in sepia, brown, black or any other colour as agreed to between the purchaser and the supplier.

### 3. REQUIREMENTS

#### 3.1 Materials

**3.1.1** The sensitized paper of Type 1 shall consist of a base paper coated with a light-sensitive chemical capable of forming a dye image of the required colour when developed in ammonia vapour.

**3.1.2** The sensitized paper of Type 2 shall consist of a base paper coated with a light-sensitive chemical capable of forming a dye image of the required colour when developed with suitable developer solution.

**3.1.3** The grammage of sensitized paper shall be as specified in 2.2.

**3.2 Coating** — The sensitized coating shall be uniform, continuous and free from any undesirable coating mark, coating spot and areas of markedly higher or lower degree of coating depth which may affect print quality. There shall be no 'strike through' of the sensitized coating to the back side. The coating shall not bleed during development. There shall be no surface disintegration in the process of printing showing any abrasion or undesirable marks.

**3.3 Speed** — The working speed for taking prints depends on the type of original from which prints are taken, the light source and the type of machine used. However, all sensitized papers during their validity period shall be capable of giving clear prints on a continuous printing machine with a cylinder diameter of  $62 \pm 2$  mm having as the light source one 120 W superactinic ultraviolet lamp at a distance of  $14 \pm 2$  mm using a well defined tracing with a black waterproof drawing ink on 60 to 65 g/m<sup>2</sup> tracing paper at a speed of not less than 25 cm/min. The print area of the sensitized paper shall be 1 m<sup>2</sup>.

**3.4 Developing** — Developing speed for both types of paper shall be such that complete development is attained by the methods given in 3.4.1 and 3.4.2 for Type 1 paper and Type 2 paper respectively. To check this,

tear the print produced, into half; subject one half portion to second development by the same procedure. In case of complete development there shall be no difference in the line strength and sharpness of the two portions of the print.

**3.4.1** Develop the paper exposed in **3.3**, using 450 ml ammonia solution of relative density 0.90, in a suitable vertical ammonia developing box of size  $145 \pm 5 \times 35 \pm 5 \times 25 \pm 5$  cm, for 6 minutes.

**3.4.2** Develop the paper exposed in **3.3** on any semiwet/semidry developing machine, using a suitable developer, having the same speed as that of exposure in **3.3**.

**3.5 Image** — The lines or image from any original produced on this paper shall be sufficiently opaque. The image thus formed shall produce good legible prints on diazo sensitized paper ( *see* IS : 9032-1978\* ).

**3.6 Validity Period** — The paper shall have a validity period of at least 3 months from the date of manufacture ( *see also* **0.2** ).

**3.7 Sizes** — The paper shall be supplied in the form of rolls of length as agreed to between the purchaser and the supplier. The width of the roll shall be  $100 \pm 2$  mm unless otherwise specified by the purchaser.

In addition to rolls, the paper may also be supplied in form of cut sheets in any of the sizes specified in IS : 1064-1961†, as agreed to between the purchaser and the supplier.

**3.8 Resistance to Curling** — If required by the purchaser, the material shall also comply with the requirement of the test for curling as prescribed in Appendix A.

NOTE — Satisfactory curling behaviour facilitates easy print taking and storage of prints.

## 4. KEEPING QUALITY

**4.1** One day prior to the date of expiry, as indicated on the container of the sensitized paper, the paper when tested as prescribed in **3.3** and **3.4** shall yield an image satisfying the requirement prescribed in **3.5**.

## 5. PACKING AND MARKING

**5.1 Packing** — Sensitized paper shall be well packed to ensure protection against moisture, light and heat. The rolls shall have a black polyethylene sheet or tube as the principal wrapper. The ends as well as the body of the roll shall be wrapped with a second wrapper securely to ensure against any damage and ingress of light and moisture. The rolls shall be wound on a cardboard core. The sheets shall also be packed accordingly.

\*Specification for diazo sensitized paper.

†Specification for paper sizes ( *revised* ).

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**5.2 Marking** — Each roll or packet of sheets shall be marked with the following:

- a) Description, type, grade and colour of paper;
- b) Length and width of roll or number and size of sheets;
- c) Expiry date;
- d) Manufacturer's name and/or his recognized trade-mark, if any; and
- e) Identification mark in code or otherwise to enable the lot of manufacture to be traced back from records.

**5.2.1** The rolls or sheets and packets may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution ( Certification Marks ) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

## 6. SAMPLING

**6.1** The method of drawing representative samples of the material and the criteria for finding out the conformity of the material to the requirements of this specification shall be as prescribed in Appendix B.

# A P P E N D I X A

( Clause 3.8 )

## TEST FOR CURLING

### A-1. PROCEDURE

**A-1.1** Take two pieces of paper of size  $100 \times 100$  mm and place on a wire screen, coated side down, in a conditioning room in which relative humidity of  $65 \pm 2$  percent and temperature of  $27 \pm 1^\circ\text{C}$  are maintained. After the sheets have been conditioned for 1 hour, remove the sheets from the screen and place on a clean, dry, flat glass surface, coated side up. After one minute, measure the height between any edge of the paper and the glass surface.

**A-1.2** The material shall be considered satisfactory if the height between any edge of the paper and the glass surface does not exceed 3 mm.

**A P P E N D I X    B***( Clause 6.1 )***SAMPLING OF REPRODUCTION TRACING PAPER****B-1. GENERAL PRECAUTIONS**

**B-1.1** Care shall be taken to select original unopened rolls or packets that are not damaged.

**B-1.2** Before sampling rolls, damaged layers from outside and three undamaged layers shall be removed.

**B-1.3** Before sampling sheets, outermost three sheets shall be removed.

**B-1.4** Samples shall not be taken from an exposed portion.

**B-1.5** Samples shall be handled as little as possible and handling with sweated hands shall be strictly avoided. Handling shall be done in subdued light.

**B-1.6** Samples shall not be folded before testing.

**B-2. SCALE OF SAMPLING**

**B-2.1 Lot** — All rolls or packets of sheets of reproduction tracing paper of the same type, grade, colour, and size, and belonging to the same batch of manufacture shall constitute a lot.

**B-2.2** For ascertaining the conformity of material to the requirements of this specification, samples shall be tested from each lot separately.

**B-2.3** The number of rolls or packets to be selected from a lot for this purpose, shall depend on the size of the lot and shall be in accordance with Table 1.

**TABLE 1    SCALE OF SAMPLING***( Clauses B-2.3, B-2.5, B-3.1 and B-3.2 )*

<b>No. OF ROLLS OR PACKETS IN THE LOT</b>	<b>No. OF ROLLS OR PACKETS TO BE SELECTED</b>	<b>PERMISSIBLE NO. OF DEFECTIVE ROLLS OR PACKETS</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
Up to 100	8	0
101 „ 500	13	0
501 „ 1 000	20	1
1 001 „ 3 000	32	1
3 001 and above	50	2

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**B-2.4** These rolls or packets shall be selected at random from the lot and in order to ensure the randomness of selection, random sampling procedures given in IS:4905-1968\* may be followed.

**B-2.5** If, however, the lot is composed of packages each containing a number of rolls or packets, at least 20 percent of the packages subject to minimum of 2 shall be selected at random. From the selected packages, approximately equal number of rolls or packets shall be selected at random so as to give the required sample size given in Table 1.

### B-3. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

**B-3.1** Each of the rolls or packets selected according to Table 1 shall be examined for requirements given in **3.1** to **3.8**. For this purpose, test specimens of required sizes shall be cut from each selected roll or packet. In the case of sheets, required number of sheets shall be first taken from each selected packet and then the test specimens prepared. As far as possible, same number of sheets shall be taken from each packet. A roll or packet failing in one or more of these requirements shall be considered as defective.

NOTE 1 — Each test specimen shall be provided with identification marks to ensure its recognition beyond doubt.

NOTE 2 — Test specimens shall be conditioned to standard atmospheric conditions for 4 hours [ see 5 of IS : 1060 (Part I)-1966† ] in a suitable room or chamber, unless otherwise specified in the method of test.

**B-3.2** A lot shall be declared as conforming to the requirements of this standard if the number of rolls or packets found defective under **B-3.1** is less than or equal to the corresponding permissible number of defective rolls or packets given in col 3 of Table 1.

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\*Methods for random sampling.

†Methods of sampling and test for paper and allied products, Part I ( revised ).

# INDIAN STANDARDS

## ON

### PAPER AND BOARD

IS:

1064-1961	Specification for paper sizes ( <i>revised</i> )
1396-1960	Specification for blotting paper
1763-1961	Specification for substances of paper and pulp board
1774-1961	Specification for paper for permanent records
1775-1961	Specification for base paper for sensitized paper
1848-1971	Specification for writing and printing papers ( <i>first revision</i> )
2483-1963	Specification for ticket board
2991-1964	Specification for base paper for waxed paper
3064-1964	Specification for hand made drawing paper
3302-1965	Specification for backing sheet for stencil
3303-1965	Specification for paper for match boxes
3338-1965	Sizes of correspondence envelopes
3413-1977	Specification for base paper for carbon paper ( <i>first revision</i> )
3673-1966	Specification for alkali resistant paper
4645-1968	Code of practice for storage of paper and board
4658-1968	Specification for coated paper and board ( art and chrome )
4661-1968	Glossary of terms used in paper trade and industry
4664-1968	Specification for pulp board
5195-1969	Specification for paper stationery items for schools
5457-1969	Sizes of folders and files
6211-1971	Code of practice for packaging of paper and board
6956-1973	Specification for cover paper
8431-1977	Specification for tracing paper
8460-1977	Specification for wrapping tissue paper
9032-1978	Specification for ??? sensiozed paper

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